

Section I (Amendments to the Claims)

Please amend claims 1, 5, 6, 15 and 25, as set out in the following listing of claims 1 -28

I. (Currently amended) A vaporizer comprising:

a thermally conductive block comprising a top surface and bottom surface and a multiplicity of non-moving elongated wells formed therein for placement of a vapor source material, the multiplicity of elongated wells communicatively connected to an interior space within the thermally conductive block for accumulation of vapor, wherein each elongated well consists of a closed end and single opening that is in fluid communication with the interior space, and wherein each elongated well is vertically positioned relative to the top and bottom surface of the conductive block, the thermally conductive block having an interior volume that comprises (i) said interior space and (ii) an internal volume of said multiplicity of elongated wells, wherein the internal volume of said multiplicity of said wells is from about 1/3 to about 1/2 of the interior volume;

a heating device for applying heat to the multiplicity of the elongated wells within the thermally conductive block;

a removable sealing lid positioned on the top of the thermally conductive block for sealing the thermally conductive block to form a closed vessel and removable for ease of filling the elongated wells; and

an openable and closable outlet for discharge of vapor formed in the vaporizer communicatively connected to the removable sealing lid and the interior space.

2. (Previously presented) The vaporizer of claim 1 further comprising a control mechanism for controlling temperature generated by the heating device.
3. (Original) The vaporizer of claim 1 containing liquid source material.

4. (Original) The vaporizer of claim 1 containing solid source material.

5. (Currently amended) A vaporizer comprising:

a thermally conductive block comprising a top surface and bottom surface and a multiplicity of non-moving elongated wells formed therein for placement of a vapor source material, the multiplicity of elongated wells communicatively connected to an interior space within the thermally conductive block for accumulation of vapor, wherein each elongated well consists of a closed end and single opening that is in fluid communication with the interior space, and wherein each elongated well is vertically positioned relative to the top and bottom surface of the conductive block;

a heating device for applying heat to the multiplicity of the elongated wells within the thermally conductive block;

a removable sealing lid positioned on the top of the thermally conductive block for sealing the thermally conductive block to form a closed vessel and removable for ease of filling the elongated wells; and

an openable and closable outlet for discharge of vapor formed in the vaporizer communicatively connected to the removable sealing lid and the interior space, wherein the vaporizer contains ~~The vaporizer of claim 1 containing~~ decaborane.

6. (Currently amended) The vaporizer of claim 1 wherein at least four elongated wells are formed in the thermally conductive block, and each of said wells has a diameter in a range of from about 3 to 8 millimeters.

7. (Previously presented) The vaporizer of claim 1 wherein the heating device for applying heat to the thermally conductive block comprise at least one resistive heating element.

8. (Original) The vaporizer of claim 1 wherein each wall of the thermally conductive block has at least one resistive heating element attached thereto.

9. (Previously presented) The vaporizer of claim 2 wherein the control mechanism for controlling temperature comprise a thermocouple.
10. (Previously presented) The vaporizer of claim 2 wherein the control mechanism for controlling temperature is arranged to maintain the block at a sufficient temperature to vaporize the source material.
11. (Original) The vaporizer of claim 1 wherein the thermally conductive block is fabricated of aluminum or an aluminum alloy.
12. (Previously presented) The vaporizer of claim 6 wherein the thermally conductive block has an interior volume of about 160 cm³.
13. (Original) The vaporizer of claim 12 wherein the multiplicity of elongated wells constitute an interior volume of about 60 cm³.
14. (Original) The vaporizer of claim 1 wherein the thermally conductive block is uniformly heated, thereby reducing cold spots within the elongated wells and interior space.
15. (Withdrawn) A method for vaporizing a source material comprising the steps of:
introducing a source material into a multiplicity of elongated wells formed in a thermally conductive block, the multiplicity of elongated wells communicatively connected to an interior space within the thermally conductive block for accumulation of vaporized source material, and wherein each elongated well consists of a closed end and a single opening that is in fluid communication with the interior space, and wherein each elongated well is vertically positioned relative to the top and bottom surface of the conductive block, the thermally conductive block having an interior volume that comprises (i) said interior space and (ii) an internal volume of said multiplicity of elongated wells, wherein the internal volume of said multiplicity of said wells is from about 1/3 to about 1/2 of the interior volume;

placing a sealing lid on the conductive block and sealing the thermally conductive block to form a closed vessel and a vacuum in the multiplicity of wells and interior space;

applying heat to the thermally conductive block to heat the elongated wells and vaporize source material therein to form source material vapor that accumulates in the interior

space; and

opening an outlet valve communicatively connected to the sealing lid and in fluid communication with the interior space for discharge of vapor for delivering source material vapor to a deposition system.

16. (Withdrawn) The method of claim 15 wherein the deposition system comprises a process unit selected from the group consisting of ion implantation units, chemical vapor deposition units, and metal organic chemical vapor deposition units.
17. (Withdrawn) The method of claim 15 further comprising controlling temperature generated by the step of applying heat.
18. (Withdrawn) The method of claim 15 wherein the source material is a liquid or a solid.
19. (Withdrawn) The method of claim 15 wherein the source material comprises decaborane.
20. (Withdrawn) The method of claim 15 wherein at least four elongated wells are formed within the thermally conductive block.
21. (Withdrawn) The method of claim 15 wherein the step of applying heat comprises resistively heating the thermally conductive block.
22. (Withdrawn) The method of claim 15 wherein temperature within the thermally conductive block is maintained at a sufficient temperature to vaporize the source material.
23. (Withdrawn) The method of claim 15 wherein the thermally conductive block is fabricated of aluminum or aluminum alloy.
24. (Withdrawn) The method of claim 15 wherein the thermally conductive block is uniformly heated, thereby reducing cold spots within the elongated wells and interior space.
25. (Currently amended) A vaporizing and deposition system comprising
a vaporizer comprising: a thermally conductive block having a multiplicity of stationary elongated wells formed therein for placement of a vapor source material, the

multiplicity of elongated wells communicatively connected to an interior space within the thermally conductive block for accumulation of vapor, and wherein each elongated well consists of a closed end and a single opening in fluid communication with the interior space, the thermally conductive block having an interior volume that comprises (i) said interior space and (ii) an internal volume of said multiplicity of elongated wells, wherein the interior volume is in a range of from about 120 cm³ to about 200 cm³, wherein each of the elongated wells in said multiplicity of elongated wells has an internal diameter of from about 3 to about 8 mm, and wherein the internal volume of said multiplicity of said wells is from about 1/3 to about 1/2 of the interior volume;

a heating device for applying heat to the thermally conductive block to vaporize the source material;

a removable sealing lid positioned on the top of the thermally conductive block for sealing the thermally conductive block to form a closed vessel and removable for ease of filling the elongated wells;

an actuatable outlet positioned in the removable sealing lid for opening and allowing discharge of vapor formed in the vaporizer in fluid communication with the interior space.

26. (Original) The system of claim 25 wherein the source material directly contacts interior surfaces of elongated wells.

27. (Previously presented) The vaporizer of claim 1, wherein the thermally conductive block is fabricated of a suitable heat-conducting material.

28. (Previously presented) The vaporizer of claim 27, wherein the heat conducting material is selected from the group consisting of silver, silver alloys, copper, copper alloys, aluminum, aluminum alloys, lead, nickel clad, stainless steel, graphite and ceramic material.